

LIST OF U.S. CUSTOMS LABORATORY METHODS

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ASTM D 3797 **Test Method for Analysis of o-Xylene by** **Gas Chromatography**

SAFETY PRECAUTIONS

This method does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to its use.

1 SCOPE AND FIELD OF APPLICATION

This method covers the purity of o-xylene by gas chromatography using capillary columns. Its use is limited to samples of greater than 98% purity; therefore, it can only be used for classifying examples of this product in Subheading 2902.41 HTS.

2 REFERENCES

ASTM D 3797

Test Method for Analysis of o-Xylene by Gas Chromatography

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ASTM D 3798 **Test Method for Analysis of p-Xylene by** **Gas Chromatography**

SAFETY PRECAUTIONS

This method does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to its use.

1 SCOPE AND FIELD OF APPLICATION

This method covers the purity of p-xylene by gas chromatography using capillary columns. Its use is limited to samples of greater than 98% purity; therefore, it can only be used for classifying examples of high purity p-xylene in Subheading 2902.43 of the Harmonized Tariff Schedule of the United States (HTSUS).

2 REFERENCES

ASTM D 3798

Test Method for Analysis of p-Xylene
by Gas Chromatography

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ASTM E 200 Practice for Preparation, Standardization, and Storage of Standard Solutions for Chemical Analysis

SAFETY PRECAUTIONS

This method does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to its use.

1 SCOPE AND FIELD OF APPLICATION

This practice covers procedures for the preparation, standardization, and storage of standard volumetric solutions and reagent solutions commonly used in chemical analysis. This method has wide applicability to all sections of the Harmonized Tariff Schedule of the United States (HTSUS) that call for analysis by wet chemical means.

2 REFERENCES

ASTM E 200

Practice for Preparation,
Standardization, and Storage of
Standard Solutions for Chemical
Analysis

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ASTM D 3457

Test Method for Preparation of Methyl Esters from Fatty Acids for Determination of Fatty Acid Composition by Gas-Liquid Chromatography

Chromatography

SAFETY PRECAUTIONS

This method does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to its use.

1 SCOPE AND FIELD OF APPLICATION

This method covers a procedure for conversion of animal and vegetable fatty acids into methyl esters suitable for analysis by gas chromatography. It is based on the esterification of fatty acids with methanol using boron trifluoride as catalyst. The methyl esters are extracted with ethyl ether and recovered by evaporation of the ether. This method is suitable for use with fatty acids having 8 to 24 carbon atoms.

2 REFERENCES

ASTM D 3457

Test Method for Preparation of

Methyl Esters from Fatty Acids for
Determination of Fatty Acid
Composition by Gas-Liquid

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ASTM E 324

Test Method for Relative Initial and Final Melting Points and the Melting Range of Organic Chemicals

SAFETY PRECAUTIONS

This method does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to its use.

1 SCOPE AND FIELD OF APPLICATION

This method covers the determination, by a capillary tube method, of the initial melting point and the final melting point, which define the melting range, of samples of organic chemicals whose melting points without decomposition fall between 30 and 250 degrees Celsius.

This method applies to any pure crystalline substance which can be ground to pass a 125-micrometer mesh sieve so that it can be placed in a 1 millimeter diameter capillary tube.

2 REFERENCES

ASTM E 324

Test Method for Relative Initial and Final Melting Points and the Melting Range of Organic Chemicals

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ASTM E 169 Practices for General Techniques of Ultraviolet-Visible Quantitative Analysis

SAFETY PRECAUTIONS

This method does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to its use.

1 SCOPE AND FIELD OF APPLICATION

These practices are intended to provide general information on the techniques most often used in ultraviolet and visible quantitative analysis. They are useful whenever the tariff calls for a quantitative analysis by ultraviolet or visible methods.

2 REFERENCES

ASTM E 169

Practices for General Techniques of Ultraviolet-Visible Quantitative Analysis

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USP 851 Spectrophotometry & Light Scattering

SAFETY PRECAUTIONS

This method does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to its use.

1 SCOPE AND FIELD OF APPLICATION

This practice covers the general theory of spectral absorption and light scattering for the spectrophotometric methods of UV-Vis, IR, AA, fluorescence, turbidimetry, nephelometry, and raman measurements. Spectrophotometric methods are used in the various qualitative and quantitative analyses of commodities throughout the Harmonized Tariff Schedule of the United States.

2 REFERENCES

USP 851
Spectrophotometry & Light
Scattering

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ASTM D 2369 Test Method for Volatile Content of Coatings

SAFETY PRECAUTIONS

This method does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to its use.

1 SCOPE AND FIELD OF APPLICATION

This method describes a procedure for the determination of the weight percent volatile content of solvent based and water-reducible coatings. Test specimens are heated at 110 +/- 5 degrees C for 60 minutes.

This method has application to the determination of the volatile content of solvent soluble polymers of heading 3208.

2 REFERENCES

ASTM D 2369

Test Method for Volatile Content of Coatings

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Organic Qualitative Analysis

SAFETY PRECAUTIONS

This method does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to its use.

1 SCOPE AND FIELD OF APPLICATION

Much structure elucidation can be done by chromatographic methods of separation and analysis by spectroscopic techniques. However, there is still a place for classical organic qualitative analysis. Classical qualitative analysis allows the "quick" determination of the functional group(s) present. They are designed so that the observations of a color change or the formation of a precipitate indicate the presence of a particular type of functional group. The following factors should be considered when performing qualitative classification tests for functional groups:

Since a compound may contain more than one functional group, the complete series of tests should be performed unless you know that the compound is monofunctional.

Very careful observation is required

when the functional group tests are performed. Note and record all observations.

Some of the color-forming tests occur for several different functional groups. Although the expected colors are given in the experimental procedures, a color may be affected by the presence of other functional groups.

It is of utmost importance to perform a qualitative test on both the unknown and a known compound that contains the group being tested. Some functional groups may appear to give only a slightly positive test and it may be helpful to determine how a compound known to contain a given functional group reacts under the conditions of the test being performed. It is most efficient and reliable to do the tests on standards at the same time as on the unknown. In this manner, inconclusive positive tests may be interpreted correctly.

2 REFERENCES

The following references are listed as guidelines for organic qualitative analysis.

USP 23

United States Pharmacopeial Convention, Inc.
Rockville MD, 1994

Spot Tests in Inorganic Analysis

F. Feigl and V. Anger
Elsevier Publishing Co., Amsterdam,

1972

The Merck Index, 5th Edition

Merck & Co., Inc.

Rahway NJ, 1940

Food Chemical Codex, 3rd Edition

Committee on Codex Specifications

National Academy of Sciences,

Washington, D.C., 1981

Clarke's Isolation and

Identification of Drugs, 2nd Edition

Editors: A.C. Moffat, J.V. Jackson,

M.S. Moss and B. Widdop

The Pharmaceutical Press, London, 1986

The Systematic Identification of

Organic Compounds, 6th Edition

R.L. Shriner, R.C. Fuson, D.Y.

Curtin, and T.C. Morrill

John Wiley & Sons, New York 1980

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ASTM E 682 Practice of Liquid Chromatography Terms and Relationships

SAFETY PRECAUTIONS

This method does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to its use.

1 SCOPE AND FIELD OF APPLICATION

This practice deals primarily with the terms and relationships used in liquid column chromatography. However, most of the terms should apply to other kinds of liquid chromatography, notably planar chromatography such as paper or thin-layer chromatography.

2 REFERENCES

ASTM E 682

Practice for Liquid Chromatography
Terms and Relationships

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Method for Emission Spectrochemical Analysis

Spectrochemical Analysis, 5th Edition
American Society for Testing and
Materials, 1968

SAFETY PRECAUTIONS

This method does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to its use.

1 SCOPE AND FIELD OF APPLICATION

Optical emission spectroscopic analysis of inorganic materials found in organic samples will follow the method outlined in ASTM E-2 SM 11-2. Routine work would not emphasize the semi-quantitative aspects of the method.

2 REFERENCES

ASTM E-2 SM 11-2
Suggested Method for Spectrochemical
Analysis of Unknown Materials by the
Powder D-C Arc Semiquantitative
Technique,
R.W. Smith and S.P. Mattarella
in *Methods for Emission*